ABSTRACTS

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Electronic alerts to prevent venous thromboembolism among hospitalized patients

Kucher N, Koo S, Quiroz R, et al. N Engl J Med 2005;352:969-77.

Conclusion: A computer-based program to alert physicians regarding the use of venous thromboembolism (VTE) prophylaxis markedly reduced rates of pulmonary embolism and deep venous thrombosis (DVT) in hospitalized patients at risk for VTE.

Summary: The authors hypothesized that use of a computer alert program to alert physicians regarding hospitalized patients at high risk for VTE might reduce the frequency of DVT by increasing the frequency of prophylaxis. A computer program was developed linked to a patient database to identify hospitalized patients at risk for VTE. The patients were randomly assigned to an intervention group in which the treating physician was made aware of the patient's risk of VTE (n = 1255) or to a control group in which no such alert was issued (n = 1251). Physicians receiving the alert for VTE prophylaxis were required to acknowledge the alert and could then order or withhold prophylaxis according to clinical judgment. Prophylaxis included graduated compression stockings, pneumatic compression boots, unfractionated heparin, warfarin, or low-molecular-weight heparin. Clinically diagnosed, objectively confirmed VTE (DVT or pulmonary embolism) at 90 days was the primary end point.

There was a greater use of mechanical prophylaxis in the intervention group (10.0% vs 1.5%; $P < .001$) and a greater use of pharmacologic prophylaxis in the intervention group (23.6% vs 13.0%; $P < .001$). There were 103 (8.2%) primary end points in the control group and 61 (4.9%) end points in the intervention group. Freedom from VTE at 90 days was 94.1% (95% CI, 92.5%-95.5%) in the intervention group vs 90.6% (95% CI, 88.7%-92.2%; $P < .001$) in the control group. The risk of VTE at 90 days was reduced by 41% with the computer alert system (hazard ratio, 0.59; 95% CI, 0.43-0.81; $P = .001$).

Comment: The necessity of VTE prophylaxis in hospitalized patients is widely acknowledged, yet VTE prophylaxis is underused. This study indicates that VTE prophylaxis can be increased and clinically evident VTE events decreased through use of a physician alert system that notifies physicians as to the patient's VTE risk. Despite this, it is also clear that because only 33.5% of patients in the intervention group received prophylaxis, additional measures will be required to maximize VTE prophylaxis in hospitalized patients.

Statins decrease perioperative cardiac complications in patients undergoing non-cardiac vascular surgery

The Statins for Risk Reduction in Surgery (StaRRS) Study. J Am Coll Cardiol 2005;45:336-42

Conclusion: Statins are highly protective against perioperative cardiac complications in patients undergoing vascular surgery.

Summary: The authors sought to assess whether statins can decrease cardiac complications in patients undergoing noncardiac vascular surgery. This was a retrospective study that recorded patient history, admission medications, and other patient characteristics in patients undergoing carotid endarterectomy, lower extremity revascularization, or abdominal aortic aneurysm repair from January 1999 to December 2000. Data were derived from a tertiary medical center. Perioperative complications of death, myocardial ischemia, myocardial infarction, congestive heart failure, and ventricular tachyarrhythmias were recorded. Predictors of perioperative cardiac complications and potential medications that may confer a protective benefit for perioperative cardiac complications were analyzed by using univariate and multivariate logistic regression analysis. There were 157 complications in 1163 eligible hospitalizations. There were significantly fewer complications in patients receiving statins (9.9%) than in those not receiving statins (16.5%; $P = .001$). The difference between the two groups was mostly due to the occurrence of congestive heart failure and myocardial ischemia. Adjustment for significant predictors of perioperative complications such as age, sex, type of operation, previously known left ventricular dysfunction, and diabetes still resulted in statins conferring a highly significant protective effect (odds ratio, 0.52; $P = .001$).

Comment: It is now well appreciated that statins have significant pleotrophic effects in addition to decreasing lipid levels. This article does not indicate when statins need to be started before an operation or how long they need to be continued after an operation. If vascular surgeons are going to prescribe statins to reduce perioperative complications, they must then be prepared to monitor the drugs' potential side effects and complications. Alternatively, they must communicate with primary care physicians to ensure that the medications are properly used and the patients adequately followed up.

Prospective randomised study of Endovenous Radiofrequency Obliteration (Closure) Versus Ligation and Vein Stripping (EVOLVeS): 2-year follow-up

Lurie F, Creton D, Eklof B, et al. Eur J Vasc Endovasc Surg 2005;29:67-73.

Conclusion: At 2 years, closure of the greater saphenous vein (GSV) with radiofrequency obliteration provides results at least equal to those of high ligation and stripping of the GSV.

Summary: EVOLVeS is a small, prospective, randomized study that compared radiofrequency obliteration of the GSV with high ligation and stripping of the GSV in patients with symptomatic varicose veins or GSV incompetence and who were candidates for either conventional vein stripping or radiofrequency obliteration of the GSV. There were five participating sites: two in France, one in Austria, and two in the United States. A total of 85 patients were entered into the study, with 46 limbs allocated to radiofrequency obliteration and 40 limbs to high ligation and stripping. Eighty limbs received treatment. This article reports intermediate clinical outcomes, rates of recurrent varicosities and neovascularization, follow-up ultrasound changes of the GSV, and quality-of-life changes in the patients participating in the trial. There were 45 patients re-examined at 1 year and 65 patients re-examined 2 years after treatment. At follow-up, patients were classified with regard to the CEAP classification for chronic venous disease and had calculation of venous clinical severity scores. Ultra sound examinations and quality-of-life assessments were also performed. There were no differences in the CEAP classifications or venous clinical severity scores in the two groups at 1 and 2 years. Of the GSV trunks occluded by radiofrequency ablation, 51% underwent progressive shrinkage of the GSV diameter over 2 years. An additional 41% of the GSVs became undetectable by ultrasound at the 2-year follow-up. Two patients with initially closed GSVs by the closure technique had reopening of the vein. Neovascularization was found in one radiofrequency obliteration case and in four stripping and ligation cases. At 1 and 2 years of follow-up, there was a cumulative rate of recurrence of varicose veins of 14% in the radiofrequency obliteration group and 21% in the stripping and ligation group (not significant). Global quality-of-life scores were in favor of radiofrequency ablation at 1 and 2 years after treatment. Pain was the only quality-of-life variable consistently reduced in the radiofrequency group.

Comment: This is another piece of evidence suggesting that, at least in the short term, catheter-based interventions for obliteration of the GSV are at least as effective as traditional ligation and stripping procedures. There are still details to be worked out regarding catheter-based obliterations of the GSV, such as the long-term effects of preservation of the proximal greater saphenous branches and when and if to combine stab phlebectomy or sclerotherapy with catheter-based treatment of the GSV.

Increased growth rate of abdominal aortic aneurysms in women, the Tromso Study

Solberg S, Singh K, Wilsgaard T, et al. Eur J Vasc Endovasc Surg 2005;29:145-9.

Conclusion: Female sex is an independent predictor for increased growth rate of an abdominal aortic aneurysm (AAA).

Summary: The Tromso Study is a population-based study emphasizing cardiovascular disease. It began in 1974. In this component of the study, men and women age 55 to 74 years were eligible for examination of their abdominal aorta with ultrasound. An AAA was considered to be present if the abdominal aorta was greater than 3.5 cm in diameter, there was a localized dilatation of the infrarenal aorta, or there was a 5-mm increase of the infrarenal abdominal aorta compared with the diameter of the aorta at the level of the renal arteries. If these criteria were met, then the patient was referred to have a CT scan of the abdominal aorta. Patients underwent surgery for an abdominal aortic diameter of 5.5 cm or more. There were 348 patients identified with AAA. Fourteen did not attend CT scan follow-up, and 31 were initially operated on because of the size of the aneurysm. Forty-seven additional patients were believed as a result of CT scanning to have a nonaneurysmal aorta. An additional 22 patients were lost to follow-up. There were therefore 185 men and 49 women eligible for follow-up. These subjects were followed up with ultrasound examination of the aorta every 3 to 6 months from the beginning of this study in 1994/1995 to study completion on December 31, 2002. During follow-up, 49 patients underwent operation because of aneurysm growth, and 48 patients died without